

PROP. VII. THEOR. V.

All the Colours in the Universe which are made by Light, and depend not on the power of imagination, are either the Colours of homogeneous Lights, or compounded of these and that either accurately or very nearly, according to the Rule of the foregoing Problem.

For it has been proved (in Prop. 1. Lib. 2.) that the changes of Colours made by refractions do not arise from any new modifications of the rays imprest by those refractions, and by the various terminations of light and shadow, as has been the constant and general opinion of Philosophers. It has also been proved that the several Colours of the homogeneous rays do constantly answer to their degrees of refrangibility, (Prop. 1. Lib. 1. and Prop. 2. Lib. 2.) and that their degrees of refrangibility cannot be changed by refractions and reflexions, (Prop. 2. Lib. 1.) and by consequence that those their Colours are likewise immutable. It has also been proved directly by refracting and reflecting homogeneous Lights apart, that their Colours cannot be changed, (Prop. 2. Lib. 2.) It has been proved also, that when the several sorts of rays are mixed, and in crossing pass through the same space, they do not act on one another so as to change each others colorifick qualities, (Exper. 10. Lib. 2.) but by mixing their actions in the Sensorium beget a sensation differing from what either would do apart, that is a sensation of a mean Colour between their proper Colours; and particularly when by the concurrence and mixtures of all sorts of rays, a white Colour

Colour is produced, the white is a mixture of all the Colours which the rays would have apart, (Prop. 5. Lib. 2.) The rays in that mixture do not lose or alter their several colorifick qualities, but by all their various kinds of actions mixt in the Sensorium, beget a sensation of a middling Colour between all their Colours which is whiteness. For whiteness is a mean between all Colours, having it self indifferently to them all, so as with equal facility to be tinged with any of them. A red Powder mixed with a little blue, or a blue with a little red, doth not presently lose its Colour, but a white Powder mixed with any Colour is presently tinged with that Colour, and is equally capable of being tinged with any Colour what-ever. It has been shewed also, that as the Sun's Light is mixed of all sorts of rays, so its whiteness is a mixture of the Colours of all sorts of rays; those rays having from the beginning their several colorifick qualities as well as their several refrangibilities, and retaining them perpetually unchang'd notwithstanding any refractions or reflexions they may at any time suffer, and that when-ever any sort of the Sun's rays is by any means (as by reflexion in Exper. 9 and 10. Lib. 1. or by refraction as happens in all refractions) separated from the rest, they then manifest their proper Colours. These things have been proved, and the sum of all this amounts to the Proposition here to be proved. For if the Sun's Light is mixed of several sorts of rays, each of which have originally their several refrangibilities and colorifick qualities, and notwithstanding their refractions and reflections, and their various separations or mixtures, keep those their original properties perpetually the same without alteration;